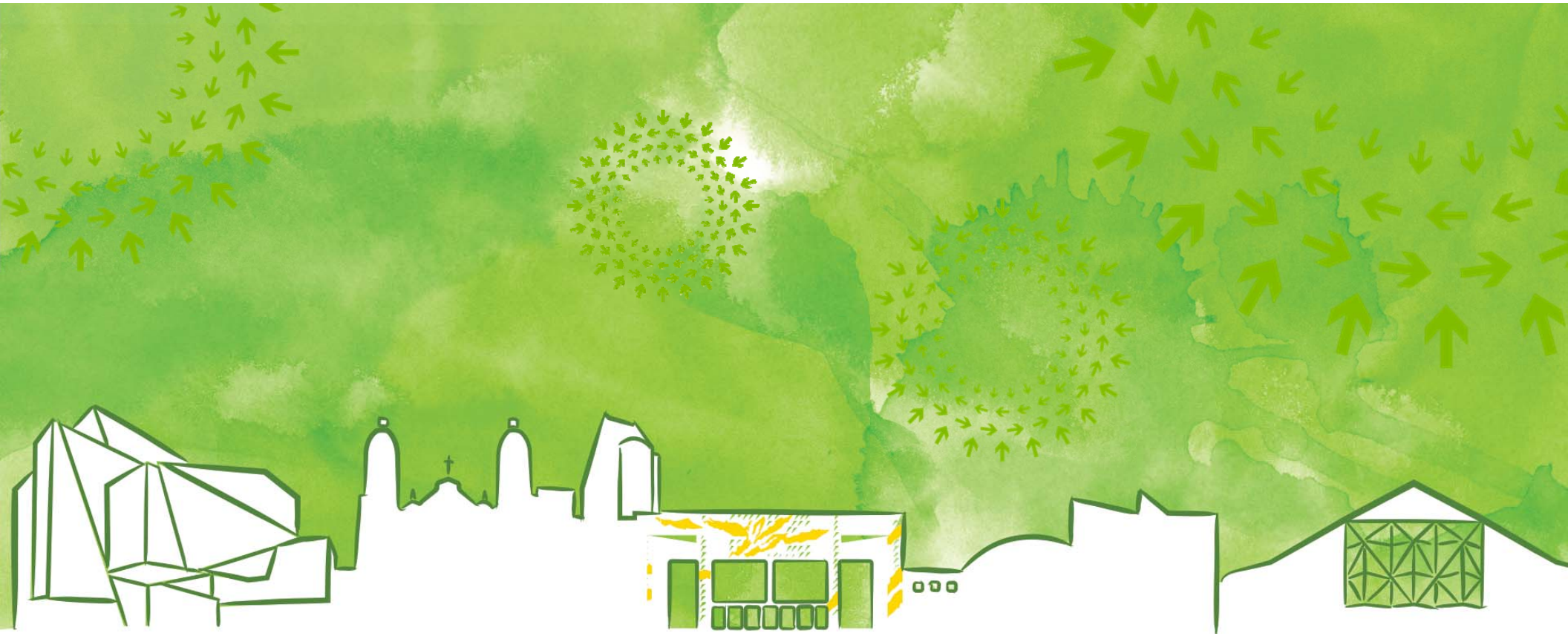


OCP U.S. SUMMIT 2016 March 9-10 | San Jose, CA

OCP U.S. SUMMIT 2016

Open Networking Evolution

From Edge to Core

Jeff Catlin
Associate VP Technology
Accton Technology Corporation /Edgecore Networks

Accton Technology

- Leading Network ODM
- > 3,000 employees worldwide, > 650 network engineers
- High volume manufacturing facilities in China and Taiwan

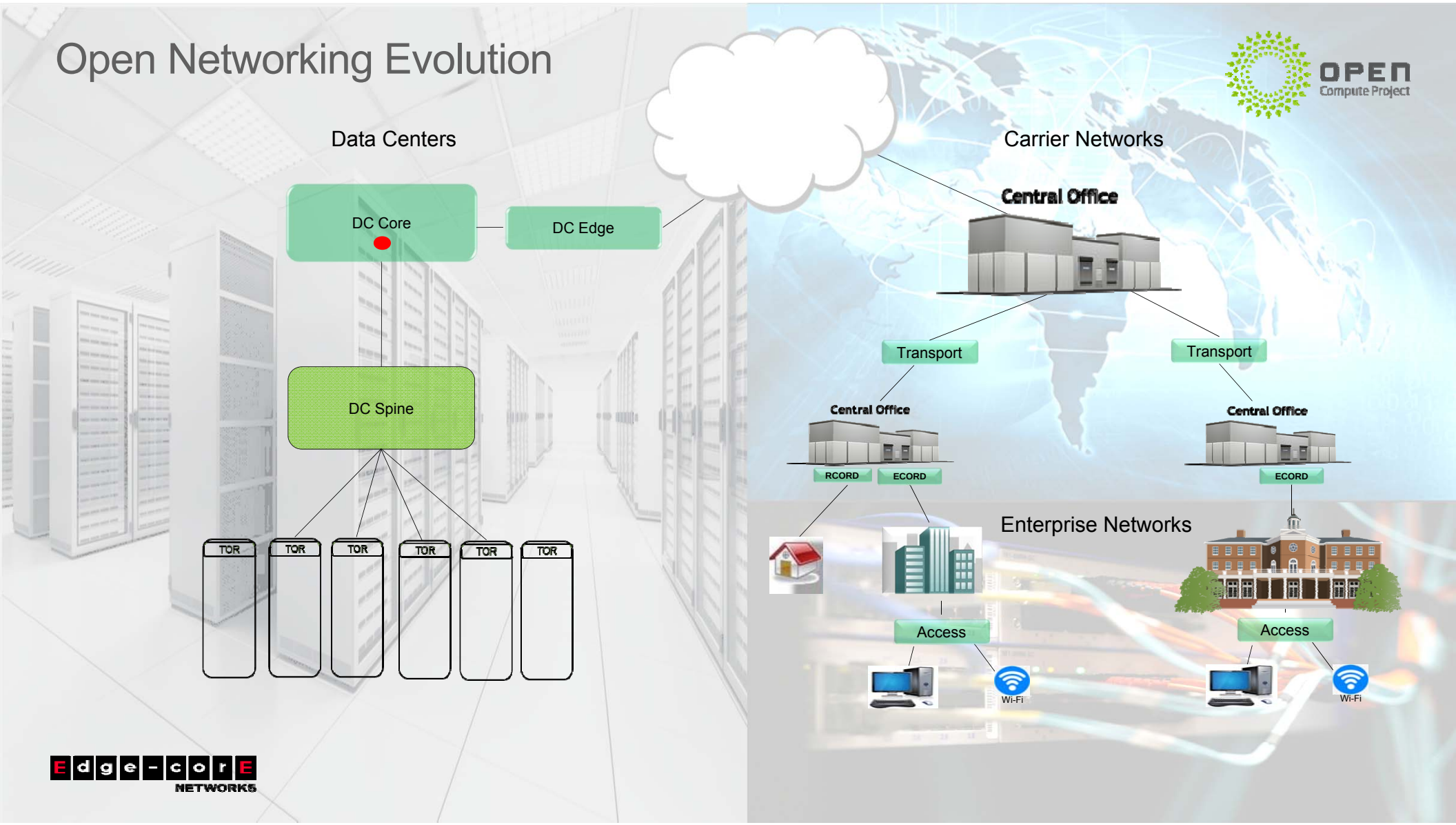
Edgecore Networks

- Go-to-market subsidiary of Accton
- Full portfolio of traditional and open network products
- Contributor of the broadest range of network designs to OCP

Open Networking Evolution

OPEN
Compute Project

Open Networking Evolution



OMP 800 / OMP 1600

- Large Scale Open Modular Platforms

- 256 Ports 100G QSFP28
  - Mountable in standard 19” rack or 21” Open Rack

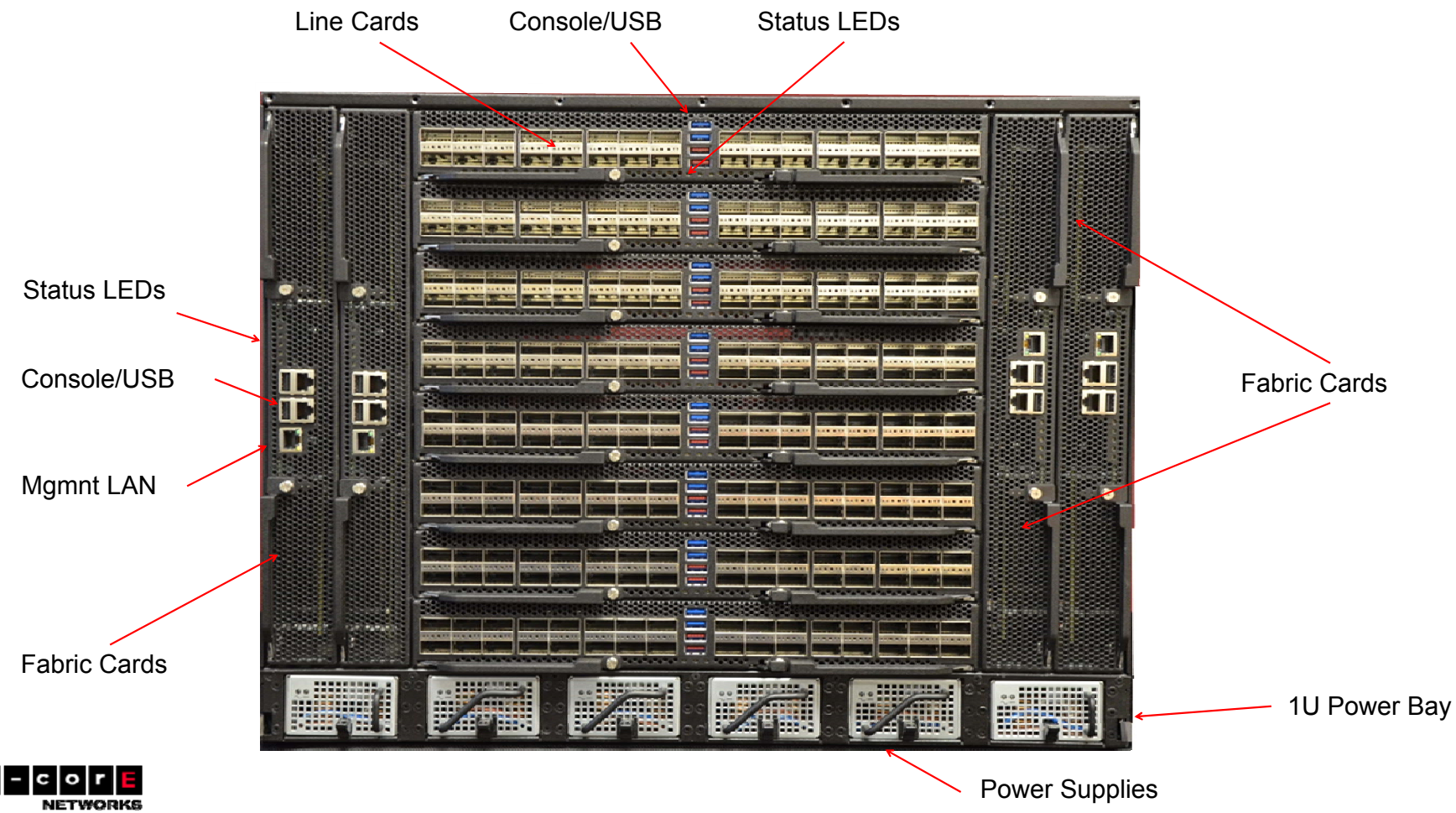
- 512 Ports 100G QSFP28
  - Mountable in 21” Open Rack

OMP 800 / 1600 Product Overview

- 256 Port version height is 10U
- 512 Port version height is 20U
- All networking components accessible from the front of units
- No dedicated system management modules
- Passive Backplane composed of PCB and cables

Edge-corE NETWORKS

OMP 800 256 PORT - FRONT



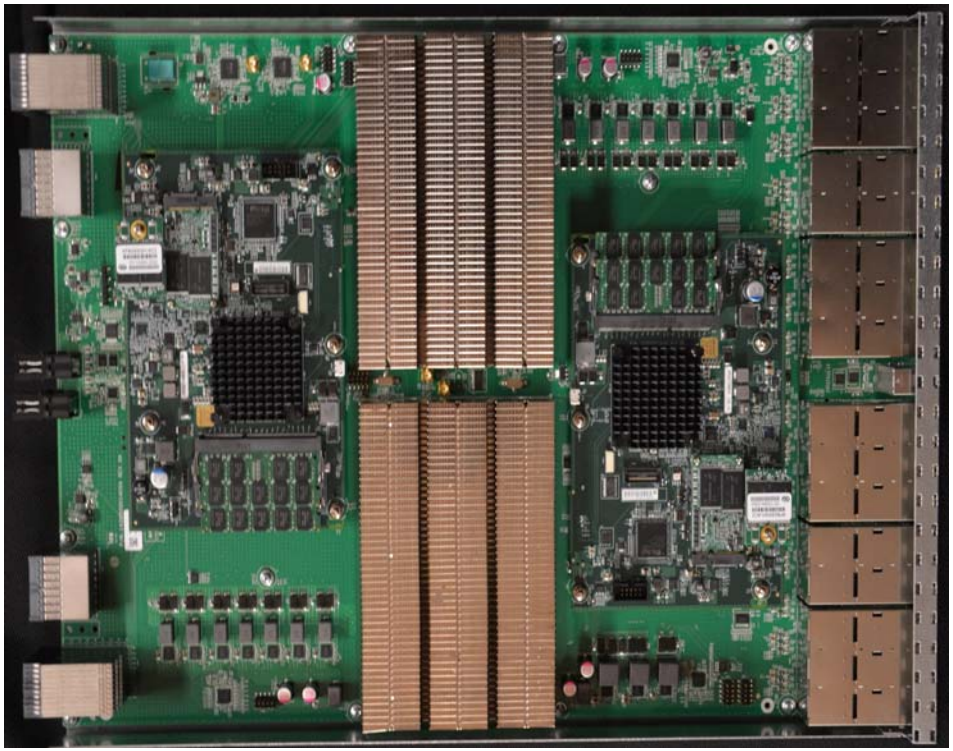
OMP 800 256 PORT - BACK

92mm FAN assemblies

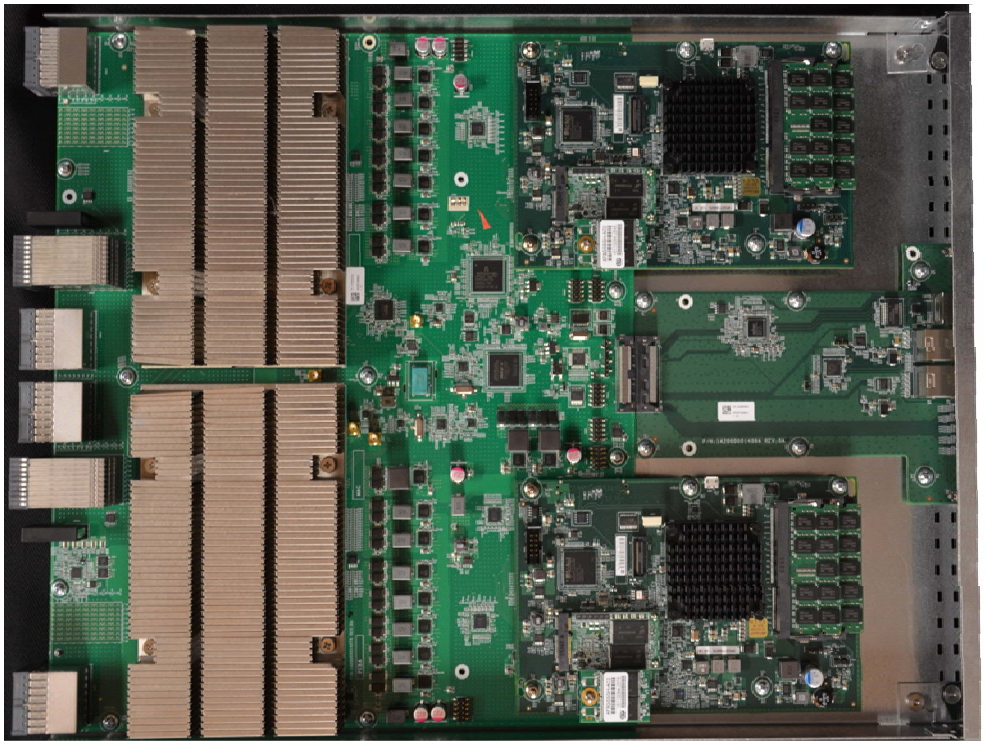
PWR PLUGS

Typical OMP Line Card

Backplane ← Line Card → Network

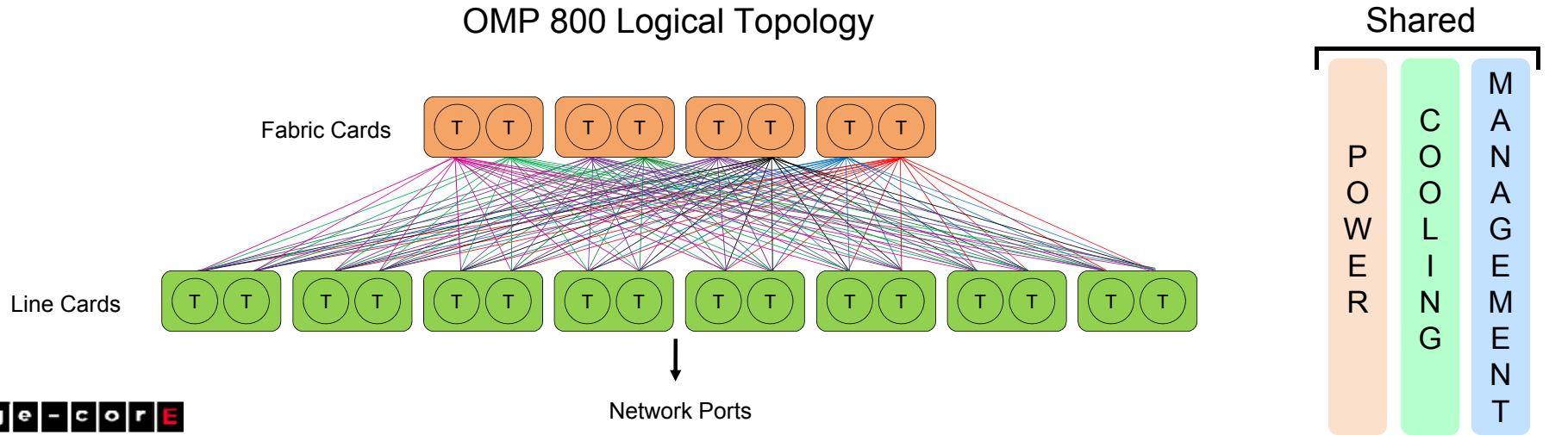


Backplane ← Fabric Card → Network



OMP Logical Topology

- Data plane connectivity between fabric cards and line cards is folded Clos
- Each fabric card and line card is composed of two BCM 56960 and two CPU modules
- Switching ASICs are managed as independent networking elements



OMP System Management

- All elements in the OMP systems are connected by an internal Ethernet network
- Fabric cards and line cards manage their own power and environmental parameters
- Fabric cards are able to read “system information” including power system status, cooling system status, system inventory
  - A system management agent is implemented on each module and this information is made available through a standard API
  - The OMP system agent will be open source and part of the OMP contribution

Edge-corE NETWORKS

OMP Future Opportunities

- Utilize future higher density 64x100G silicon offerings with single CPU for fabric and line cards to significantly reduce cost
- Line cards with expandable Buffer / TCAM ASIC technologies
- Line cards with increased processing power (CPU/NPU) for virtualized network functions (NFV)
- Future optical front ends such as MicroQSFP, COBO On-Board Optics, Coherent optics…

Edge-corE NETWORKS

OMP 800 Product Comparison

	Folded-Clos of Discrete Switches (24) 32x100G Switches, (256) QSFP28 DAC	Folded-Clos Chassis 256-port QSFP28 Chassis
Provisioning & Management	= Same logical network topology and provisioning =	
CAPEX hardware		+ 15% - 25% Savings
Power	9.3 kW	+ 7 kW. 22% Savings = 2.3kW
Rack Space	24 RU	+ 10 RU; 60% Savings
Simplified Cabling		+ Lower Integration Cost
Reliability		
Failure Frequency		+ Fewer PSUs, Fan Failure Points
Blast Radius	3.2 Tbps (Single ASIC unit) +	6.4 Tbps (2 ASICs) to Full Chassis
Scale-Out $ Increments	Lower +	Higher
Serviceability		
Sparing & Sourcing	Common TOR & Spine Switches +	
Hot/Cold Aisle Flexibility	Reversible Air Flow SKUs +	Front (Port) to Back only
Supplier Diversity	Multiple Vendors +	Open Design

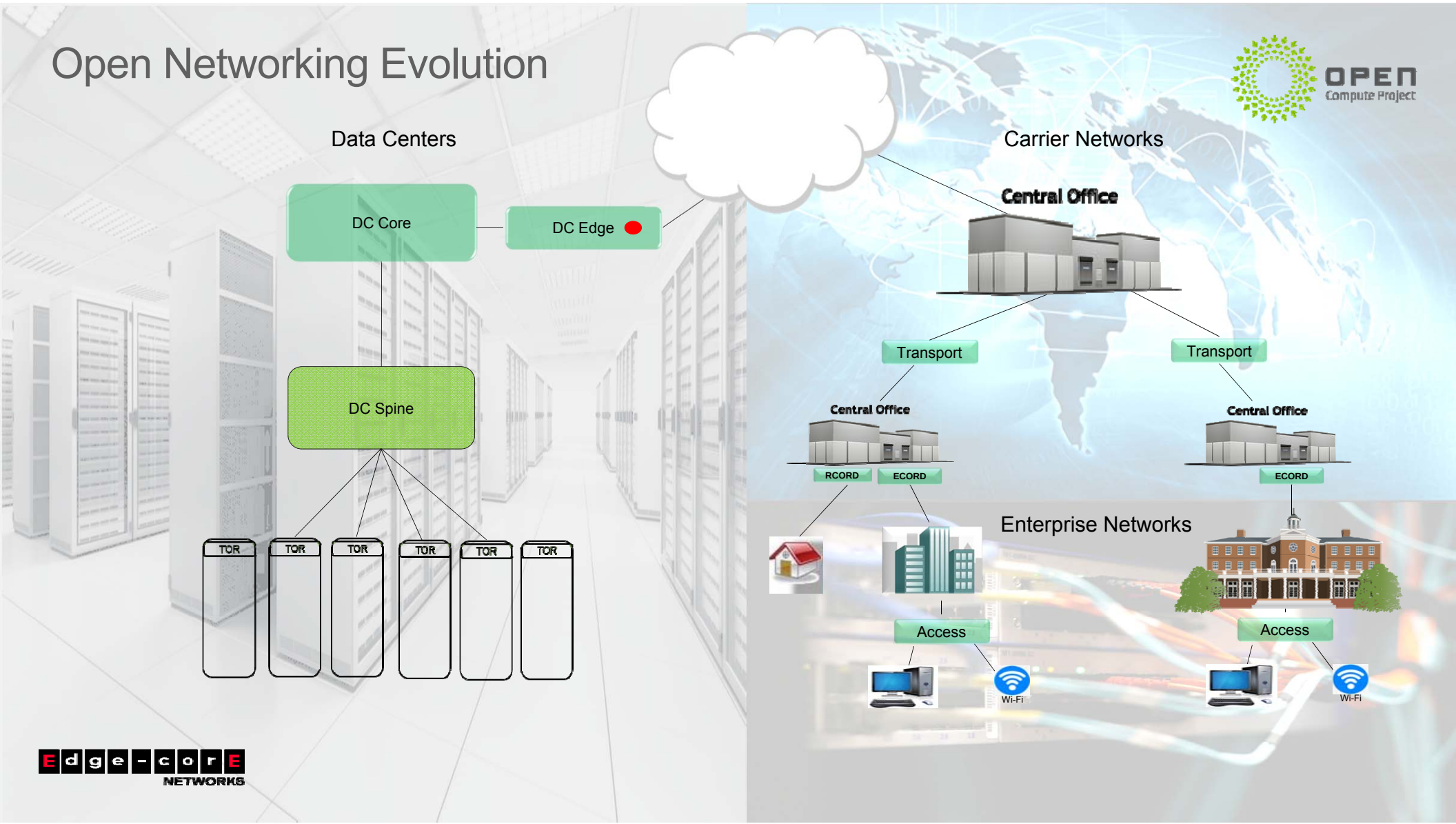
OMP Software Support

Open Network Linux

Software for Open Networking in the Cloud

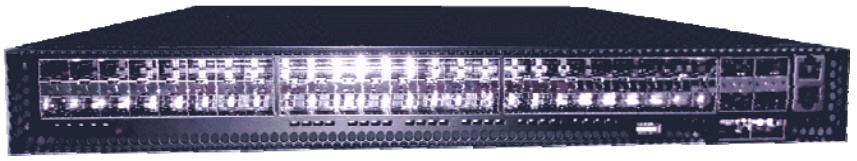
SONiC

Open Networking Evolution



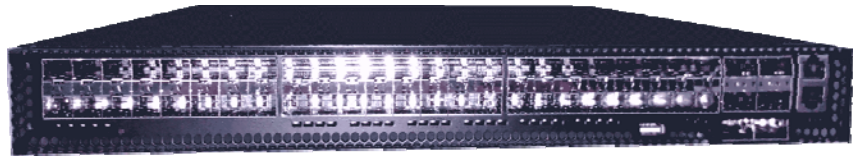
AS5912-xx High Capacity Edge Switch

- Based Upon Broadcom DNX 88370 “Qumran”
- Integrated deep buffering with large on chip tables and extensive traffic management capabilities
- Expandable packet buffer up to 6GB
- Expandable TCAM with BCM 52311
- Metro Ethernet functions including MPLS, VPLS, L2/3 VPNs, OAM



AS5912-xx High Capacity Edge Switch

- Two front panel I/O configuration options:
  - 48 x 10G SFP+ * 6 x 100G QSFP28
  - 12 x 40G QSFP+ * 6 x 100G QSFP28



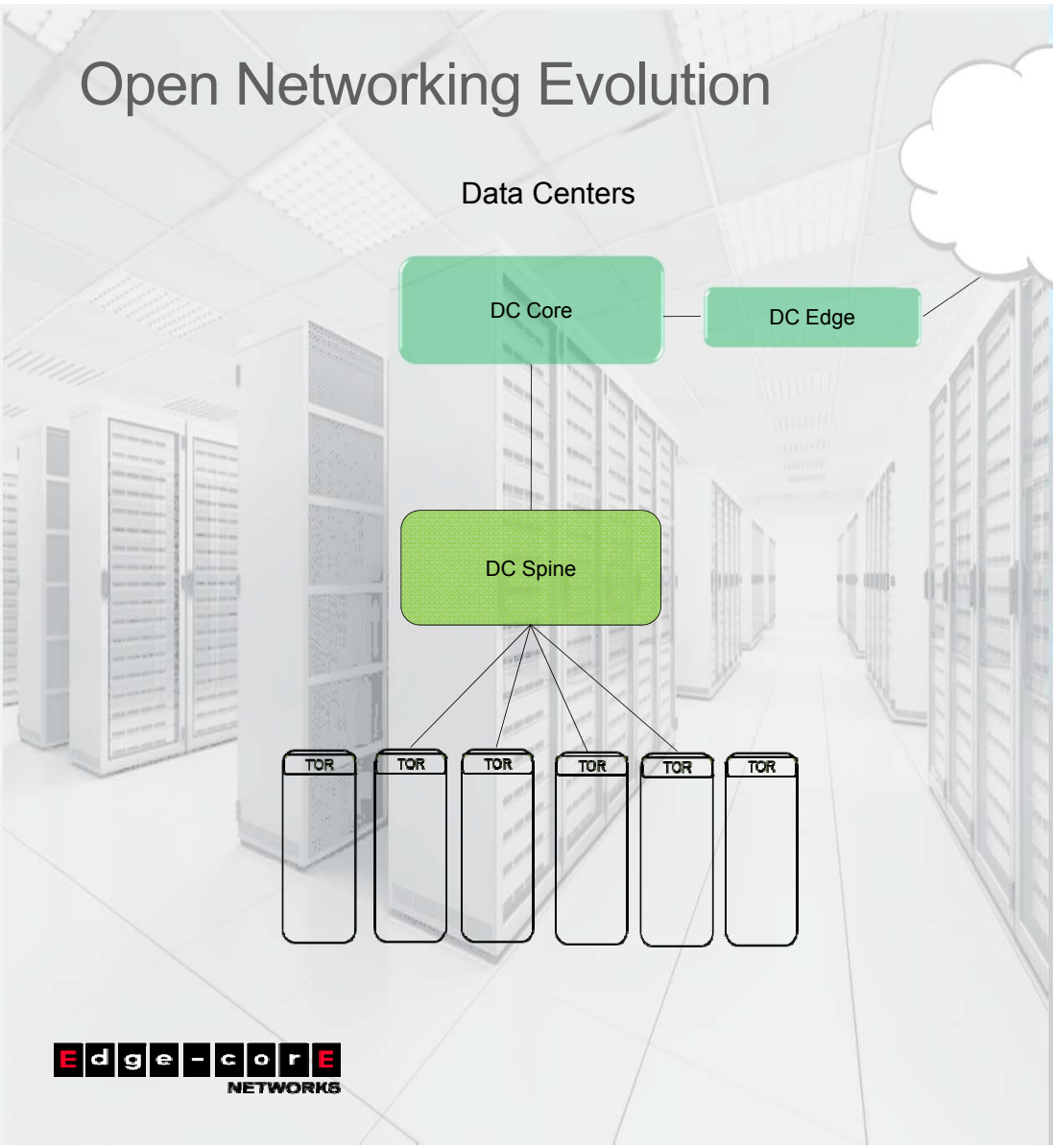
- Modular CPU subsystem
  - X86
  - PPC
  - ARM

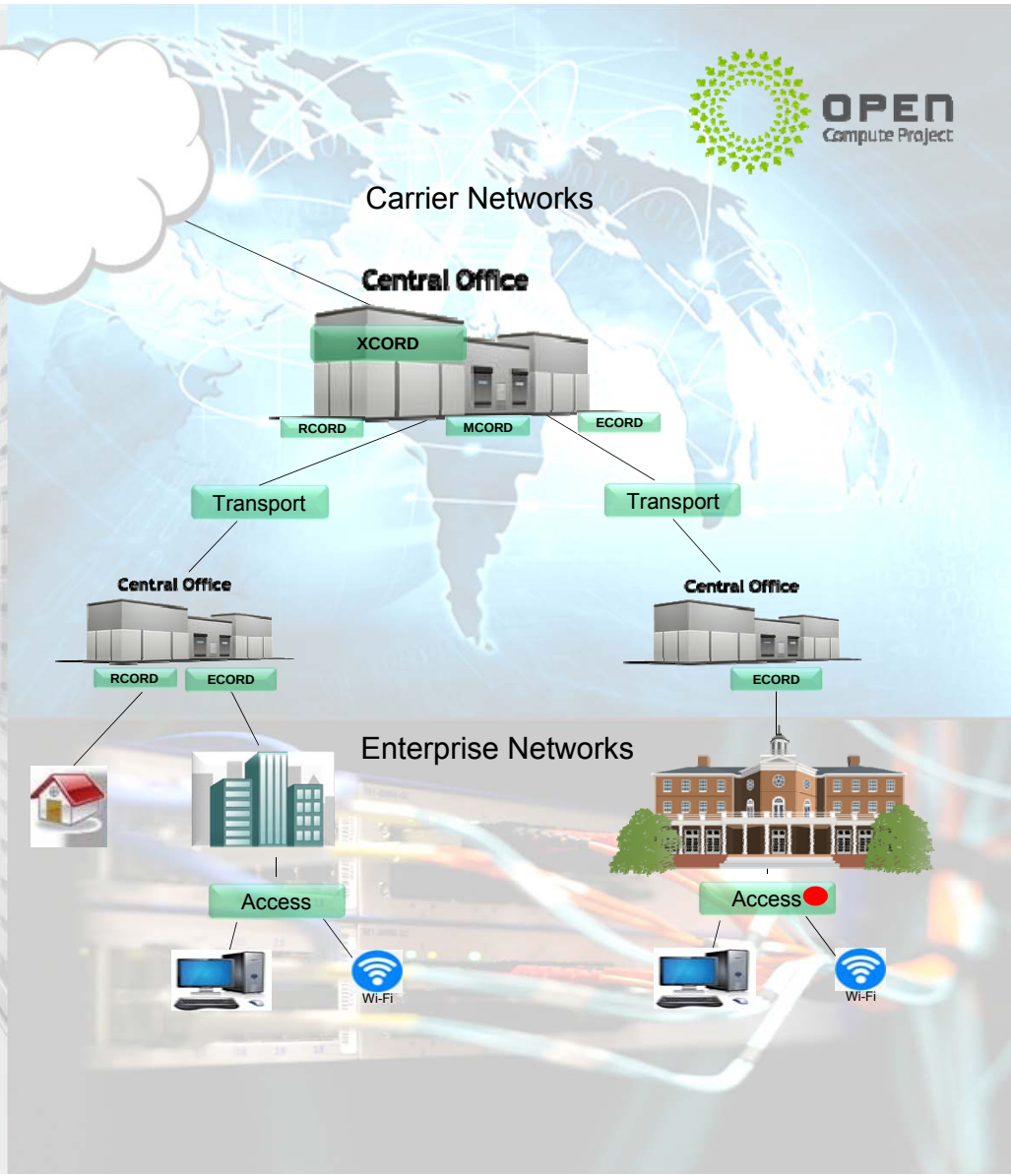
High Capacity Edge Switch Software

Open Network Linux

Software for Open Networking in the Cloud
SONiC

Open Networking Evolution





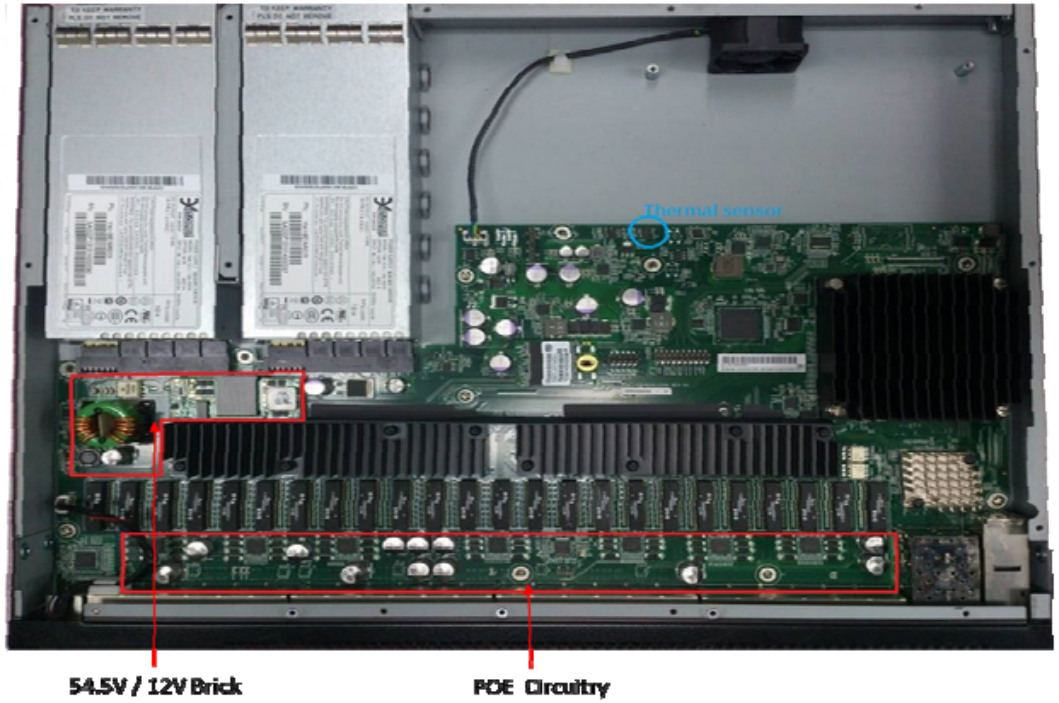
Edge-corE NETWORKS

AS4610-xx Access Switch

- Provides Gigabit Ethernet access for wired and wireless users
- Based on Broadcom BCM56340 Helix 4 silicon
- Four unique SKUs available all made from one common PCB
  - 24/48x1G + 4x10G + 2x20G stacking
  - 24/48x1G with PoE + 4x10G +2x20G stacking

AS4610-xx Access Switch

- PoE functionality
  - All ports on PoE SKUs simultaneously support 802.3af/at
  - UPoE (60W) supported on eight ports



AS4610-xx Access Switch Software

Open Network Linux

Software for Open Networking in the Cloud

SONiC

Open Networking

What is next in the Evolution of Open Networking ?

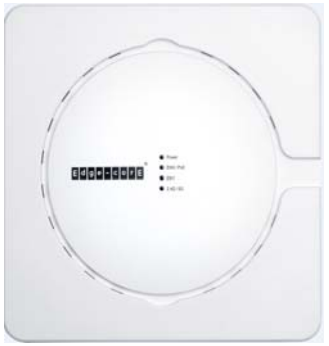
Open Wi-Fi Access Points

- Three contributions being done to kick-start this market
- Indoor ECW7211 3x3 802.11ac
- Indoor ECW7212 2x2 802.11ac
- Outdoor ECWO7211 3x3 802.11

Edge-corE NETWORKS

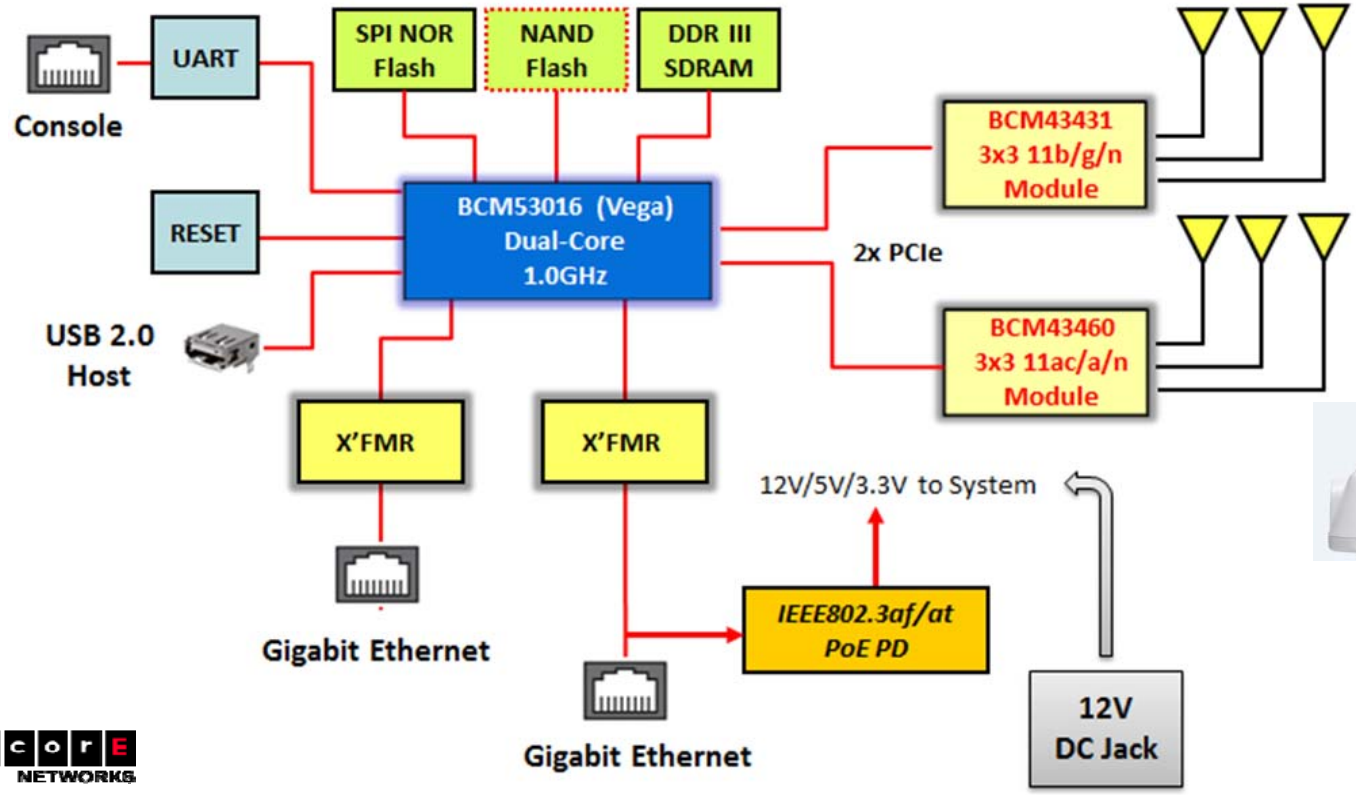
Open Wi-Fi Access Points

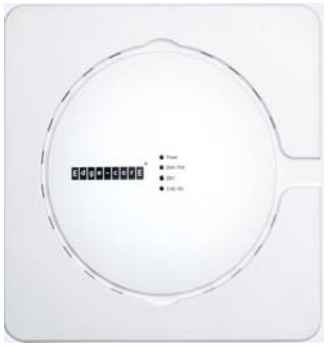
- Indoor 3x3 802.11ac dual band dual radio
- Based upon Broadcom 53016A/5822B “Vega/+”
- 2.4G Wi-Fi support through BCM43431
- 5G Wi-Fi support through BCM43460
- Supports two 1Gb Ethernet interfaces
- Support for PoE power or direct 12V power module



Open Wi-Fi Access Points

Indoor 3x3 802.11ac dual band dual radio



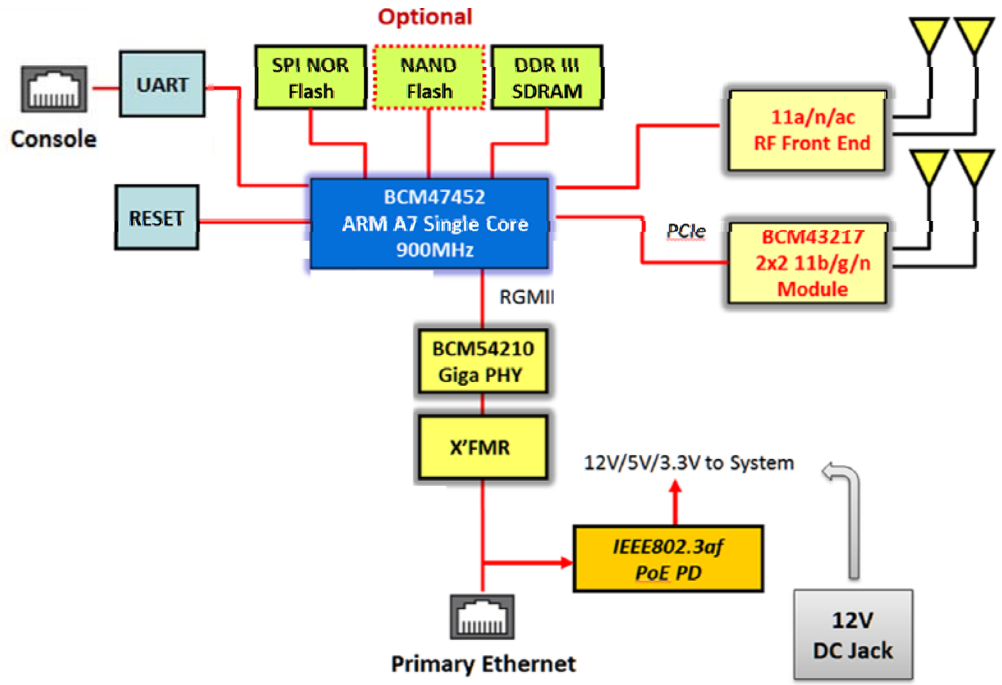


Open Wi-Fi Access Points

- Indoor 2x2 802.11ac dual band dual radio
- Based on Broadcom BCM47452
- 2.4G Wi-Fi: BCM43217
- 5G Wi-Fi: BCM47452 SOC
- Supports one 1Gb Ethernet interface
- Support for PoE power or direct 12V power module

Open Wi-Fi Access Points

Indoor 2x2 802.11ac dual band dual radio

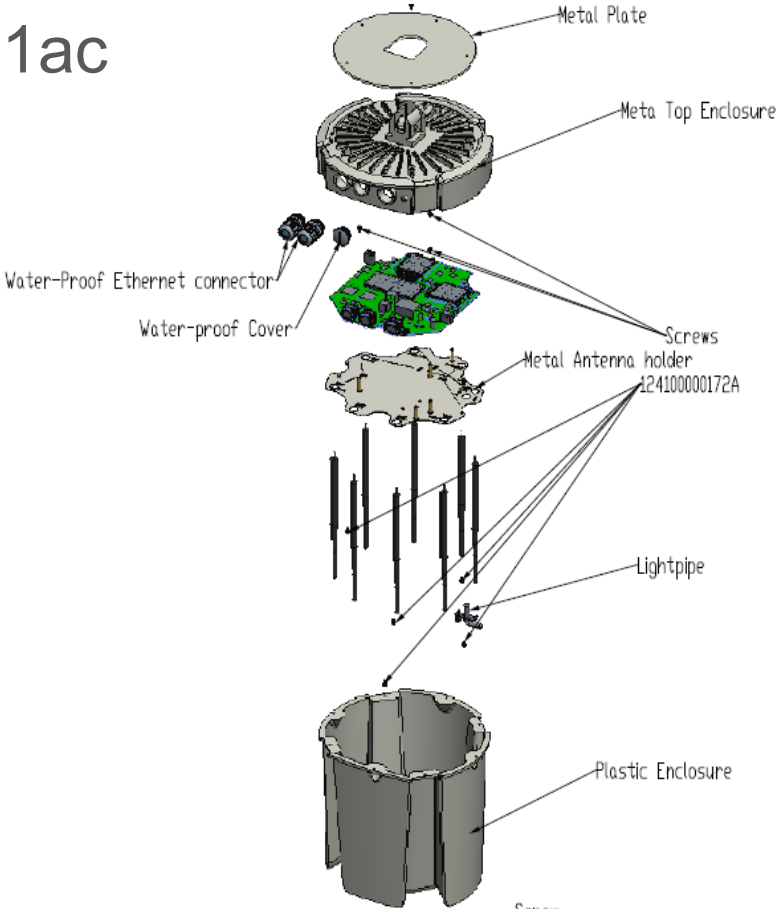


Open Wi-Fi Access Points

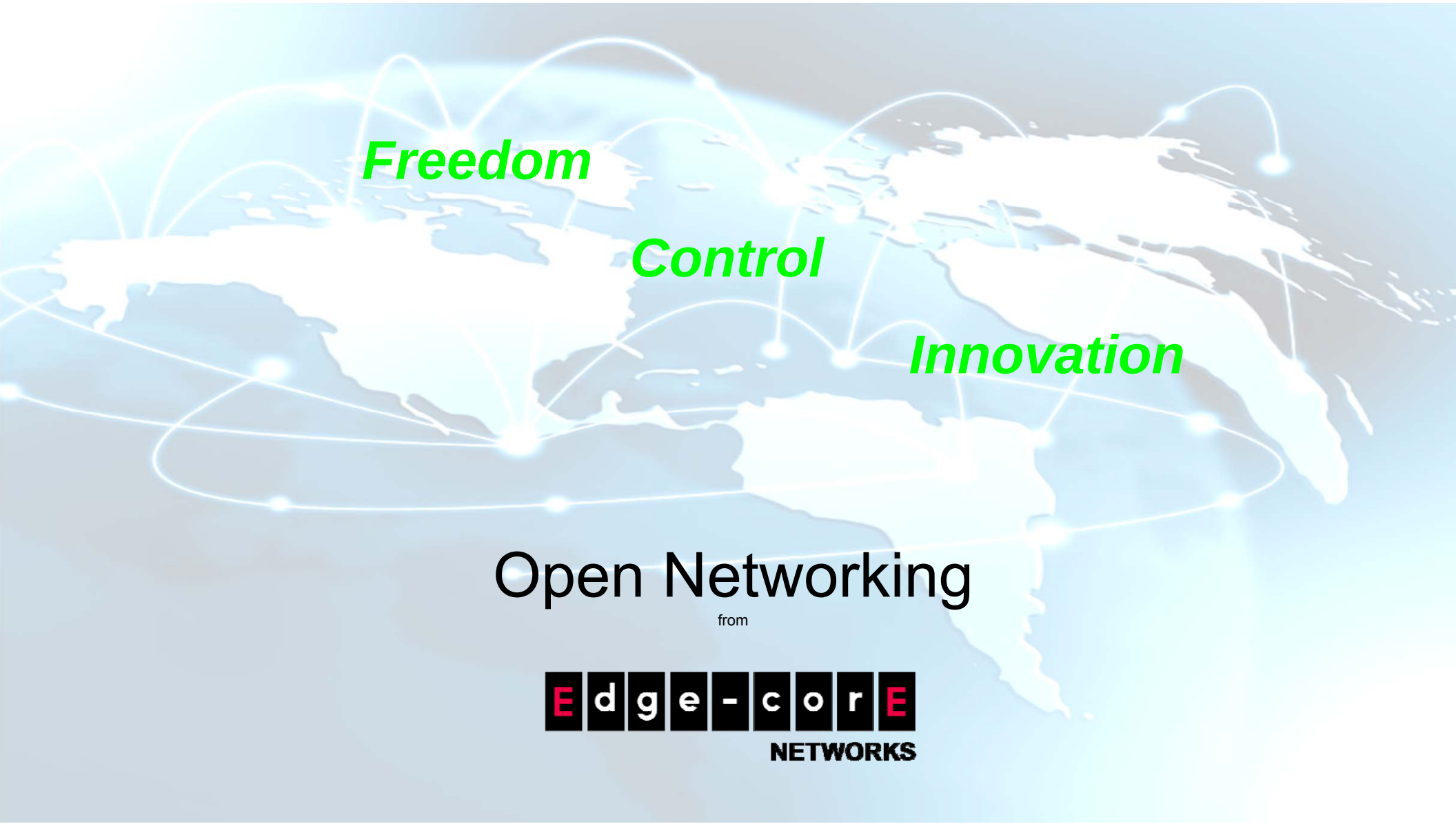
- Outdoor 3x3 802.11ac dual band dual radio
- Same design as indoor 3X3 repackaged for outdoor form factor
- Supports up to eight internal Omni directional antennas
- Supports wind speed to 165 km/hr
- Supports operating temp -40 to 55 C
- Supports IP67 Ingress Protection dust tight (6) immersion in water up to 1M (7)

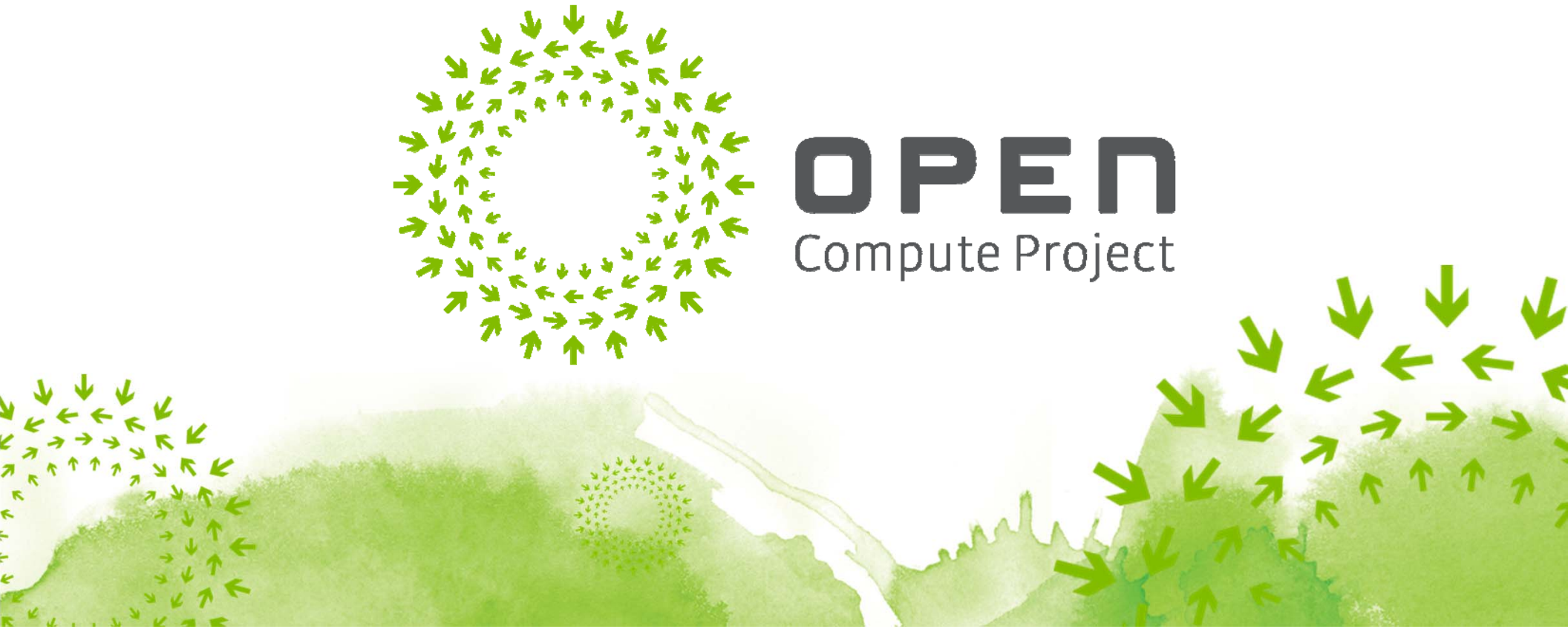
Open Wi-Fi Access Points

Outdoor 3x3 802.11ac



Open Wi-Fi Access Points


Freedom
Control
Innovation
Open Networking
from
Edge-corE
NETWORKS


OPEN
Compute Project